

### **DETAILED ACTION**

1. This action is in response to Applicant's amendment received on 5/16/2007 including the amendment to include the cross-sectional diameter is changed from .020 to .025 and those received on 12/12/2007 including the cross-sectional diameter is changed from .60 to .060 which are still marked in the response filed 4/6/09 overcoming the issue addressed in the notice of non-compliant.

#### ***Drawings***

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 12. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 3 and 70. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in

compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The applicant has amended each of the independent claims to include the cross sectional diameter being between .025-.060 inch. However, the specification only contains support for the range of .020-.060 inch.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 31 is rejected under 35 U.S.C. 102(b) as being anticipated by Kesling (US 4,676,747). Kesling discloses using an accessory arch bar for placing orthodontic force upon the teeth consisting of forming a longitudinal arch bar into a pre-determined shape (Figure 2/Column 3, Lines 51-53); placing the bar adjacent to the cheek side of an arch wire of an orthodontic appliance (Figure 3); and ligating the bar to an orthodontic appliance (col. 2, lines 3-8).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3, 5, 7 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wool 4,424,033 in view of Northcutt 3,75,850.

4. In re claims 1 and 3, Wool shows an arch bar comprising a metal wire with a longitudinal body having opposing longitudinal ends (Figure 1) and a cross-sectional diameter (Figure 3); a longitudinal length similar to the length of an arch wire on a fixed orthodontic appliance (i.e. 38; Figure 7); a straight longitudinal body which becomes curved when placed on the orthodontic appliance (Figure 7); and tying means (i.e. column 4, lines 7-11) for attaching the accessory arch bar to an orthodontic appliance, wherein a wire ligature (i.e. 44) is used to attach the arch bar to an orthodontic bracket (Figure 7). In re claim 7, in addition to what was described above, Wool also shows an arch bar attached to a fixed orthodontic appliance by piggybacking on the labial side of the installed appliance (i.e. 38; Figure 7), comprising a metal wire with a longitudinal body having opposing longitudinal ends (Figure 1), a cross-sectional diameter (Figure 3), and the longitudinal body is curved on a flat plane (Figure 1); a longitudinal length similar to the length of an arch wire on a fixed orthodontic appliance (Figure 7); and tying means for attaching the accessory arch bar to an orthodontic appliance, wherein a wire ligature is used to attach the arch bar to an orthodontic bracket (column 4, lines 9-11). Wool teaches the invention as substantially claimed and discussed above, however, with respect to claims 1, 6, 7 and 11 does not specifically teach the cross sectional diameter of the wire is 0.025 to 0.060 inches or more specifically 0.027 inches.

5. Northcutt teaches a diameter of 0.028 inches (col. 1, ll. 56-49). While Northcutt does not specifically teach the diameter of 0.027 inches, it would have been obvious to one having ordinary skill in the art at the time of Applicant's invention to make Wool's cross sectional diameter of the wire with Northcutt diameter teachings since this

modification can be considered as a matter of obvious design choice in order to achieve the desired results from the treatment. Furthermore it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

6. Claims 2 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wool in view of Northcutt 3,75,850 in view of Moss (3,315,359).
7. Wool/Northcutt teaches the invention as substantially claimed and discussed above, however, does not teach the ends of said bar are formed at a right angle to the bar's long axis and directed towards the teeth.
8. Moss teaches bending the ends of an orthodontic arch wire at right angles to form secure end sections (col 2, ln 57-60). Therefore, it would be obvious to one having ordinary skill in the art at the time of the applicant's invention to modify Wool/Northcutt to form right angles in the end sections of the arch bar as taught by Moss in order to create secure end sections that do not irritate the inside portions of a patient's mouth as taught by Moss.
9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wool in view of Northcutt 3,75,850 in view of White (US 6,431,861).
10. Wool/Northcutt teaches the invention as substantially claimed and discussed above, however, does not teach the bar is comprised of stainless steel.

11. White teaches an arch bar that is comprised stainless steel (col 4, ln 20).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of Applicant's invention to modify Wool/Northcutt to make the arch bar out of stainless steel as taught by White in order to ensure the bar can manipulated to lie within a flat plane or can substantially follow a continuous curved shape as taught by White.

Furthermore, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice (*In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960) MPEP 2144.07).

12. Claims 6, 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wool in view of Northcutt 3,75,850 in view of Kelly (US 6,095,809).

13. Wool/Northcutt teaches the invention as substantially claimed and discussed above, however, does not teach the composition of the bar being Ti beta 3.

14. Kelly teaches an orthodontic arch bar that is comprised of beta-titaniums (col 5, ln 46-52). Therefore, it would be obvious to one having ordinary skill in the art at the time of the applicant's invention to modify Wool/Northcutt to make the arch bar comprise of Ti beta 3 as taught by Kelly in order provide a sufficient stiffness and flexibility for the bar to operate as taught by Kelly. Furthermore, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice (*In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960) MPEP 2144.07).

15. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wool in view of Northcutt 3,75,850 in view of Miura (5,017,133).

16. Wool teaches the invention as substantially claimed and discussed above, however, does not specifically teach the ends of said bar are looped towards the teeth when placed on an orthodontic appliance. Miura, however, teaches bending the ends of an orthodontic arch wire into loops (Figures 2-3) wherein the loop can encircle an orthodontic wire or bracket hook. Therefore, it would be obvious to one having ordinary skill in the art at the time of the applicant's invention to modify Wool/Northcutt to form loops in the end sections of the arch bar in order to secure said end sections and prevent the arch bar from slipping through brackets or tubes.

17. Claims 13, 16-17, 19, 21-23, 25 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over White (6,431,861) in view of Northcutt 3,75,850. In re claim 13, White discloses an arch bar attached to a fixed orthodontic appliance (Figures 3A-3B) comprising a metal wire with a longitudinal body having opposing ends (Figure 1-2); a cross sectional diameter that can be 0.022 inches (col 6, ln 2-3); and a longitudinal axis (Figure 1). It should also be noted that applicant is claiming an article of manufacture and not the process of forming/making the device, accordingly, the manner in which the device is formed, i.e. forming the desired dental arch shape "with" a flat occlusal plane, is given little weight. *In re Fessmann*, 489 F.2d 742, 744, 180 USPQ 324, 326 (CCPA 1974). In re claims 16, 22 and 28, White discloses the composition of

the dental arch bar is stainless steel (col 1, ln 38). In re claims 19 and 25, White discloses the arch bar as previously described, as well as shows the wire is curved either upwards or downwards away from the flat plane in the direction that the occlusal plane of the teeth is to be moved (col 5, ln 54-59); a longitudinal length similar to the length of an arch wire on a fixed orthodontic appliance (Figures 2-3); and tying means for attaching the accessory arch bar to an orthodontic appliance, wherein a wire ligature is used to attach the arch bar to an orthodontic bracket (col 7, ln 10-11). In re claims 21 and 27, White discloses the composition of the arch bar is comprised of metal compositions (col 3, ln 50-54). White teaches the invention as substantially claimed and discussed above, however, with respect to claims 13, 17, 19, 23, 25 and 29 does not specifically teach the cross sectional diameter of the wire is 0.025 to 0.060 inches or more specifically 0.027 inches.

18. Northcutt teaches a diameter of 0.028 inches (col. 1, ll. 56-49). While Northcutt does not specifically teach the diameter of 0.027 inches, it would have been obvious to one having ordinary skill in the art at the time of Applicant's invention to make the cross sectional diameter of the wire taught by White 0.027 inches as taught by Northcutt as a matter of obvious design choice in order to achieve the desired results from the treatment. Furthermore it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).



19. Claims 14, 20 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over White in view of Northcutt 3,75,850 in view of Moss. In re claims 14, 20 and 26, White/Northcutt teaches the invention as substantially claimed and discussed above, however does not teach the ends of said bar are formed at a right angle to the bar's long axis and directed towards the teeth.

20. Moss teaches bending the ends of an orthodontic arch wire at right angles to form secure end sections (col 2, ln 57-60). Therefore, it would be obvious to one having ordinary skill in the art at the time of the applicant's invention to modify White/ Northcutt to form right angles in the end sections of the arch bar as taught by Moss in order to create secure end sections that do not irritate the inside portions of a patient's mouth as taught by Moss.

21. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over White in view of Northcutt 3,75,850 in view of Miura.

22. White/Northcutt teaches the invention as substantially claimed and discussed above, however, does not specifically teach the ends of said bar that are looped towards the teeth when placed on an orthodontic appliance.

23. Miura teaches bending the ends of an orthodontic arch wire into loops (Figures 2-3) wherein the loop can encircle an orthodontic wire or bracket hook. Therefore, it would be obvious to one having ordinary skill in the art at the time of the applicant's invention to modify White/Northcutt to form loops in the end sections of the arch bar as

taught by Miura in order to secure said end sections and prevent the arch bar from slipping through the brackets and tubes.

24. Claims 18, 24 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over White in view of Northcutt 3,75,850 in view of Kelly.

25. White/Northcutt teaches the invention as substantially claimed and discussed above, however, does not teach the composition of the bar being Ti beta 3.

26. Kelly teaches an orthodontic arch bar that is comprised of beta-titaniums (col 5, ln 46-52). Therefore, it would be obvious to one having ordinary skill in the art at the time of the applicant's invention to modify White/Northcutt make the arch bar comprise of Ti beta 3 as taught by Kelly in order provide a sufficient stiffness and flexibility for the bar to properly operate as taught by Kelly. Further more, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice (*In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960) MPEP 2144.07).

### ***Response to Arguments***

Applicant's arguments with respect to the claims regarding the cross-sectional diameter have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments filed May 16, 2007 have been fully considered but they are not persuasive. Applicant argues regarding claim 31 that the prior art of Kesling does not teach the claimed limitations because Kesling teaches torqueing auxiliaries and the

present invention is not capable of torquing the teeth. However, the claim only claims that the arch bar imparts movement to the teeth, not a specific type of movement which that applicant is arguing. Since the prior art teaches the bar producing a movement the claimed limitations are met. Applicant further argues that Kesling does not teach the limitation of placing the bar adjacent to the cheek side of an arch wire, however, as illustrated in figs. 2-3 of Kesling the bar is placed adjacent the arch wire in a direction towards the gum. The cheek is located on three of the four sides of the wire. The fourth side is adjacent to the tooth. Therefore by placement of the bar adjacent the arch wire in a direction towards the gum, the bar is placed adjacent the cheek side of an arch wire. Applicant further argues that the prior art does not teach ligating the bar to an orthodontic appliance, however, as cited in the previous office action, col. 2, ll. 3-8 teaches using a ligature to fix the bar to the appliance or a lock pin. The use of a ligature is also illustrated in fig. 16. Therefore the prior art clearly teaches this limitation.

Regarding the prior art of Wool, applicant argues the Wool does not teach an arch bar, but teaches an arch wire. However, no special definition of an arch bar is given in the specification and the claimed limitation of the arch bar are met by Wool. Applicant states on page 6, the past paragraph of the arguments that claim 1 claims a cross-sectional diameter and to define the cross sectional diameter in the present invention the specification with the drawing must be viewed. However, it is brought to the attention of the applicant that: "personnel are to give claims their broadest reasonable interpretation in light of the supporting disclosure. In re Morris, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023,1027-28 (Fed. Cir. 1997). Limitations appearing in the

specification but not recited in the claim should not be read into the claim. *E-Pass Techs., Inc. v. 3Com Corp.*, 343 F.3d1364, 1369, 67 USPQ2d 1947, 1950 (Fed. Cir. 2003) (claims must be interpreted "in view of the specification" without importing limitations from the specification into the claims unnecessarily). In *re Prater*, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969). See also In *re Zletz*, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989) (see MPEP 2106 II C). The applicant has not given any special definition to the term "cross section", therefore, the limitation is interpreted as is broadest reasonable interpretation. The prior art of Wool teaches a bar having a cross-section as discussed in the previous office action and illustrated in fig. 3 of Wool. While the cross section of the bar may be different than the applicant's, the specifics of the cross section are not claimed and therefore not read into the claimed limitations. Applicant further argues that Wool does not teach the limitation of the longitudinal length similar to the length of an arch wire on a fixed orthodontic appliance because Wool teaches an arch wire and not bar so the length is the same and not similar. Applicant further argues that the arch bar but be shorter, as illustrated in figs 5B and 5C of the current application, than the arch wire. However, this limitation is not claimed so this argument is moot. Further as defined by dictionary.com similar is "having the same shape"; therefore the claimed limitation is met by Wool. Applicant further argues that the limitation of the bar's body being straight and the becoming curved when placed on the orthodontic is not taught by the prior art, however, the method of forming the device is not germane to the issue of patentability of the device itself. Therefore, this limitation has been given little patentable weight. Wool teaches

the method of forming a device into an arch, therefore the limitation is met. The time at which the device is formed is not germane to the issue of patentability. Applicant further argues the Wool does not teach the limitation of a ligature being used to attach the arch bar to an orthodontic bracket because Wool teaches using ligatures or hook, which are not tying (ligature) means. However, just because the prior art teaches more than one way of means to attach the bar to the bracket does not mean that the prior art does not teach the claimed limitations. Applicant further argues that the limitation of the tying means attaching the bar to an arch wire is not met by the prior art, however, the applicant claims the tying means attach the bar to the arch wire **or** directly to the bracket. The prior art teaches, as discussed above and in the previous office action, the bar being attached to the bracket, therefore the claimed limitation is met. Since the applicant has used the claim language of **or** only one of the two must be met.

Regarding the prior art reference of Moss, the applicant argues that Moss teaches the bend in an upward direction as opposed to the inwards bent in the present invention, however, the specific direction that the applicant is arguing is not claimed. The applicant only claims the angle is "directed towards the teeth" which the prior art teaches. Applicant is further arguing the functionality of the wire is not the same as claimed. However, the bend as taught by Moss, make is able to solder the wire, which makes the wire more secure, therefore the claimed limitation is met. Further, it is noted that the device only has to be capable of functioning as claimed, and a wire having a bend is more secure than a wire having no bend, therefore the claimed limitation is met. Applicant further argues that the device of Moss cannot be placed into a tube, however,

as illustrated in fig. 4 of Moss and discussed above the device is placed in a tube, Furthermore, the wire is capable of being placed in a tube and then bent. Applicant further argues that it would not have been obvious to one having ordinary skill in the art at the time of the invention to modify Wool with the right angle of Moss because it would require substantial reconstruction or redesign of the prior art, however, the change in shape of the wire is held to be an obvious matter of design choice in the art (see MPEP 2144.04 IV B) and does not require substantial reconstruction or redesign.

Applicant argues regarding claim 9, that the wire of the Miura reference cannot circle another orthodontic arch wire because the wire is the arch wire, However, the wire is capable of encircling a second arch wire. Further the applicant has used the claim language of "orthodontic wire **or** bracket hook" therefore only one of the two limitations has to be met. The wire is capable of encircling both of them, therefore the claimed limitation is met.

Applicant argues regarding the White reference that what the arch bar is used should be given weight, which as discussed in the above rejection it is with respect to the claimed limitations. However, the claim is directed towards an apparatus claim and not a process claim. While the prior art teaches forming the shape and then placing it on the bracket rather than placing it on the bracket and the forming it is a method of how to use the device more than a process of forming it. The method of how to use the device is not germane to the issue of patentability in an apparatus claim and is therefore given little weight. Applicant further argues regarding the limitation of the bend upwards or downwards is not met by the prior art because the prior art teaches multiple bends.

However, the claim language is not limited to only one bend, and as discussed above, the specification and drawing are not interpreted into the claimed language and therefore the claimed limitations are met.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The definitions of diameter and similar are included to help the applicant further understand the examiner's interpretation of the claimed limitations.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Werner whose telephone number is (571) 272-2767. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cris Rodriguez can be reached on (571) 272-4964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

**Heidi Eide**  
**Examiner**  
**Art Unit 3732**

/Heidi M Eide/  
Examiner, Art Unit 3732

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/Cris L. Rodriguez/  
Supervisory Patent Examiner, Art Unit 3732